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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,217	06/11/2001	Ikuya Tsurukawa	206470US-2	9559

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EXAMINER
ELKASSABGI, HEBA

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 08/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/877,217	TSURUKAWA ET AL.	
	Examiner	Art Unit	
	Heba Elkassabgi	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

☒ Notice of References Cited (PTO-892)
☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means, supply means, first means, second menas, and detecting means" as claimed in Claims 12,13,14,15,16,17,18, and 19, and the claimed subject matter of Claims 1,10,12, and 26 of the commutator with a contact electrode part must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The "means, first means, second means, detecting means, and supply means are not disclosed in the

specification as to what the means are in order for the examiner to properly and fully understand the invention of the applicant.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,3,10,12,18,20,23,26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183).

3. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the

commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180° apart on the commutator, and at least one rotation detecting brush is configured to contact the commutator at a third rotation angle position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plan conductive layer.

4. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

5. It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator in order to form a substantially circular plate-like member.

6. The examiner notes that the method of making claims 20 and 23 are inherently included in the apparatus disclosed above.

7. Claims 2,8,13,17,21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183) and Suzuki (U.S. Patent 5119466).

8. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plan conductive layer and a noise-suppressing element.

9. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

10. Suzuki illustrates in Figure 3 a DC motor having a noise-suppressing element (lower case member which performs a function of an electromagnetic shield)(34) is provided on the electrical parts mounting baseboard (printed circuit board) (40), in order to suppress noise produced in the direct current motor.

11. It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator in order to form a substantially circular plate-like member and Suzuki's noise-suppressing element in order to suppress noise produced in the direct current motor.

12. In regards to Claim #7, it would have been obvious to one having ordinary skill in the art at the time the invention was made to decide thee angular position of the crushes in relation to the commutator, since it has been held that discovering an

optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

13. The examiner notes that the method of making claims 21 and 24 are inherently included in the apparatus disclosed above.

14. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183) and Ohtake et al. (U.S. patent 5598045).

15. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. However, APA does not disclose an electrical parts mounting baseboard in contact with

the rotational shaft and a commutator including a contact electrode part formed with a plan conductive layer and the electrical parts mounting baseboard being fixed to the shaft.

16. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

17 Ohtake et al. discloses in Figure 1 a support base (case cap)(6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6), includes external terminals (pig-tail wires) (14), in order to provide external connection to the direct current motor.

18 It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator with a plane conductive layer and the contact electrode part in order to form a substantially circular plate-like member and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the direct current motor.

19. Claims 5,9,11,15,19,22,25,27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183) and Fassel et al. (U.S. Patent 4514670).

20. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plan conductive layer and rotational brush in contact with the electrical part.

21. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts

mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

22. Fassel et al. discloses in Figure 1 a DC motor (12) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the direct current motor and that at least one sliding contact position of the detecting means axe arranged at a different distance that, in order to have to the cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

23. It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator with a plane conductive layer and the contact electrode part in order to form a substantially circular plate-like member and Fassel et al.'s brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

24. The examiner notes that the method of making claims 22 and 25 are inherently included in the apparatus disclosed above.

25. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183) and Suzuki (U.S. Patent 5119466) and Fassel et al. (U.S. Patent 4514670).

26. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft , a commutator including a contact electrode part formed with a plan conductive layer, a noise-suppressing element and rotational brush in contact with the electrical part.

27. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon

layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

28. Suzuki illustrates in Figure 3 a DC motor having a noise-suppressing element (lower case member which performs a function of an electromagnetic shield)(34) is provided on the electrical parts mounting baseboard (printed circuit board) (40), in order to suppress noise produced in the direct current motor.

29. Fassel et al. discloses in Figure 1 a DC motor (12) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the direct current motor and that at least one sliding contact position of the detecting means axe arranged at a different distance that, in order to have to the cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

30. It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator with a plane conductive layer and the contact electrode part in order to form a substantially circular plate-like member

and Suzuki's noise-suppressing element in order to suppress noise produced in the direct current motor and Fassel et al.'s brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

31. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (a.k.a. APA) and further in view of Hotta et al. (U.S. Patent 6259183) and Ohtake et al. (U.S. Patent 5598045) and Fassel et al. (U.S. Patent 4514670).

32. Applicants Prior Art discloses a direct current motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic field to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair of electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase differences due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. However, APA does not disclose an electrical parts mounting baseboard in contact with

the rotational shaft , a commutator including a contact electrode part formed with a plan conductive layer, a noise-suppressing element and rotational brush in contact with the electrical part.

33. Hotta et al. illustrates in Figure 4B, a commutator (30) having a contact electrode part (riser piece) (13) formed with a plane conductive layer (metallic carbon layer) (5) and the contact electrode part (13) being formed on the electrical parts mounting base board (commutator acting as a base board) (30), with the electrical parts mounting base board (30) is fixed on the rotation shaft (33) such that the rotation shaft perpendicularly intersects the electrical parts mounting base board, in order to form a substantially circular plate-like member.

34. Ohtake et al. discloses in Figure 1 a support base (case cap)(6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6), includes external terminals (pig-tail wires) (14), in order to provide external connection to the direct current motor.

35. Fassel et al. discloses in Figure 1 a DC motor (12) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the direct current motor and that at least one sliding contact position of the detecting means axe arranged at a different distance that,

in order to have to the cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

36. It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Hotta et al.'s commutator with a plane conductive layer and the contact electrode part in order to form a substantially circular plate-like member and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the direct current motor and Fassel et al.'s brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

HYE
August 20, 2002